In situ PCR for detection and differentiation of Newcastle disease virus strains in Leghorn chickens

ABSTRACT

In experiment 1, six specific pathogen free (SPF) chickens were intra-nasally infected with velogenic (v) NDV strain with titre of 10^5 EID_{50}/0.1 mL and 6 non-infected birds were used as controls. Chickens were sacrificed at different times and tissue samples were collected for *In situ* PCR and immunoperoxidase staining (IPS). *In situ* PCR was more sensitive ($P < 0.05$) than IPS for detection of NDV. In a 2^{nd} experiment, *In situ* PCR was done to differentiate NDV strains. Groups of 5 SPF chickens each, were infected with velogenic (10^5EID_{50}/0.1 mL) or lentogenic (l) NDV ($10^{3.0}$ EID_{50}/0.1 mL) strains. Non-infected birds were used as controls. After sampling of tissues, an *In situ* PCR was developed using specific velogenic and lentogenic strain probes. *In situ* PCR velogenic probe was positive only to tissues infected by velogenic strain whereas lentogenic probe only with lentogenic infected-tissues. The findings suggested that the *In situ* PCR differentiated lentogenic from velogenic NDV virus strains.

Keyword: In situ PCR; Newcastle disease virus strains; Lentogenic; Velogenic